

REMARKS

Claims 1-19 are pending in the application and have been rejected. Reconsideration and allowance of Claims 1-19 in view of the above amendments and following remarks is respectfully requested.

Objection to the Abstract

The Examiner has objected to the abstract for containing insufficient description of the invention and has required correction. Applicants have amended the abstract. Withdrawal of the objection is respectfully requested.

The Rejection of Claims 1, 3, 4, 6-8, and 17-19 Under 35 U.S.C. § 103(a)

Claims 1, 3, 4, 6-8, and 17-19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,562,740, issued to Cook et al., in view of U.S. Patent Application Publication No. U.S. 2003/0208859 by Neogi et al., and further in view of U.S. Patent No. 5,571,604, issued to Sprang et al. Withdrawal of the rejection is requested for the following reasons.

The claimed invention relates to whitened crosslinked cellulosic fibers, comprising cellulosic fibers treated with a crosslinking agent, a whitening agent comprising one or more dyes, and a bleaching agent. See independent Claims 1, 9, and 17.

The Examiner states that the Cook reference describes a process for making citric acid crosslinked fibers that includes applying a citric acid crosslinking agent and catalyst to a web of fibers, separating the web into individualized fibers, heating the individualized fibers to provide individualized crosslinked fibers, and bleaching the crosslinked fibers using hydrogen peroxide and sodium hydroxide. The Examiner states that the Cook reference does not disclose the use of a whitening agent in the preparation of the crosslinked fibers.

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The Examiner relies on the Neogi reference for the teaching of the addition of colorant (e.g., blue dye) to whiten fluff pulp. The Examiner states that the Sprang reference describes that chemical additives, such as dyes and pigments, can be added to a fibrous web. The Examiner concludes that it would have been obvious to modify the process described in the Cook reference by adding a blue dye, as described in the Neogi reference, to the formed web, as described in the Sprang reference, to increase whiteness of the product to make the product more preferable to customers.

Applicants respectfully submit that the Neogi reference is not citable as a reference against the present application.

The Neogi reference has a publication date of November 13, 2003. The present application was filed March 31, 2004, less than one year after the publication of the Neogi reference. Therefore, the Neogi reference is a § 102(e) reference with respect to the present application. Like the pending application, the Neogi reference is assigned to Weyerhaeuser Company. Pursuant to 35 U.S.C. § 103(c)(1), subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of Section 102, shall not preclude patentability under Section 103 where the subject matter and the claimed invention was, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. Because the Neogi reference is a § 102(e) reference (invention by another) and was assigned to Weyerhaeuser Company at the time the present invention was made, and because the present application is also assigned to Weyerhaeuser Company, pursuant to 35 U.S.C. § 103(c)(1), the Neogi reference is not available as prior art citable against the present application.

Applicants submit that without the Neogi reference, there is no motivation to combine the colorant described in the Sprang reference with the crosslinking process described in the Cook

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reference. The Cook reference solves the problem of improving the brightness of citric acid crosslinked fibers by treating citric acid crosslinked fibers with an alkaline solution of hydrogen peroxide. The Cook reference fails to suggest or provide any motivation to further color fibers produced by that method to improve their brightness. Furthermore, the Sprang reference merely notes that fibrous webs can be subject to chemical post-treatment and that a variety of chemicals (e.g., dyes and pigments, among others) can be used to impart or enhance desirable properties. The Sprang reference provides no suggestion or motivation to color crosslinked fibers that would be further subject to bleaching, as described by the Cook reference.

Because the Neogi reference is unavailable as a prior art reference, and because the Cook and Sprang references fail to teach, suggest, or provide any motivation to make the claimed whitened crosslinked cellulosic fibers, the claimed invention is nonobvious and patentable over the Cook and Sprang references. Withdrawal of this rejection is respectfully requested.

The Rejection of Claims 2, 9-11, and 13-16 Under 35 U.S.C. § 103(a)

Claims 2, 9-11, and 13-16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Cook, Neogi, and Sprang references as applied to Claims 1, 3, 4, and 6-8, and further in view of U.S. Patent No. 5,482,514, issued to von Raven. Withdrawal of the rejection is requested for the following reasons.

As noted above, the Neogi reference is not available as prior art that is citable against the present application, and the Cook and Sprang references fail to teach or suggest whitened crosslinked cellulosic fibers produced by treating cellulosic fibers with a crosslinking agent, a whitening agent, and a bleaching agent. The teaching of the von Raven reference fails to cure the deficiencies of the teachings of the Cook and Sprang references. The von Raven reference describes a process for enhancing the whiteness, brightness, and chromaticity of papermaking fibers by the addition of one or more photoactivators to the fibers. The von Raven reference

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distinguishes the photoactivators useful in enhancing the color properties of papermaking fibers from conventional dyes. For example, at Col. 1, lines 48-57, the reference states:

If it is desired to reduce the yellow tinge of paper making fibres to achieve chromaticity in the desired range, then a blue dye must be added, and to reduce a reddish tinge a greenish-blue dye must be added etc. The addition of such dyes results in a certain loss of whiteness and, in particular, in a very marked drop in brightness.

Accordingly, the invention relates to a process for enhancing the whiteness, brightness and chromaticity of paper making fibres or mixtures thereof by adding photoactivators.

Applicants respectfully submit that the von Raven reference teaches away from the addition of a colorant, such as a blue dye, to cellulosic fibers to improve whiteness and/or brightness.

The combined teachings of the Cook, Sprang, and von Raven references fail to teach, suggest, or provide any motivation to make the claimed invention directed to whitened crosslinked cellulosic fibers.

Regarding Claim 9, the independent claim directed to a method for making whitened crosslinked cellulosic fibers, applicants note that the claimed invention includes the steps of applying a crosslinking agent and a whitening agent to a web of pulp fibers to provide a web of treated fibers, and then separating the web of treated fibers into individualized treated fibers and curing the individualized treated fibers to provide individualized crosslinked fibers. In contrast, the Sprang reference merely describes chemical post-treatments that may be added to a web; those treatments including dyes and pigments to impart or enhance desirable properties. See Col. 7, lines 39-45. The Sprang reference fails to suggest wet end treatment as in the claimed invention.

Because the Neogi reference is unavailable as a prior art reference, and because the Cook, Sprang, and von Raven references, either alone or in any combination, fail to teach, suggest, or

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provide any motivation to make whitened crosslinked cellulosic fibers, the claimed invention is nonobvious and patentable over the cited references. Withdrawal of the rejection is respectfully requested.

The Rejection of Claims 5 and 12 Under 35 U.S.C. § 103(a)

Claims 5 and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Cook, Neogi, Sprang, and von Raven references, as applied to Claims 1-4 and 6-11 above, and further in view of U.S. Patent No. 5, 512,064, issued to von der Eltz. Withdrawal of the rejection is requested for the following reasons.

Claim 5 depends from Claim 1, and Claim 12 depends from Claim 9. Claims 1 and 9 have been addressed above.

The Neogi reference is not available as prior art. The deficiencies of the teachings of the Cook, Sprang, and von Raven references are not cured by the teaching of the von der Eltz reference.

The von der Eltz reference relates to azo dyes and azo metal complex dyes. More specifically, the von der Eltz reference describes a process for dyeing fiber materials (i.e., textiles and fabrics). The process seeks to enhance the substantivity of the dyes (i.e., improve dye fixation to the material and to improve the fastness properties of the dyeing). The reference addresses the problem associated with traditional dyeing processes that require strongly alkaline conditions to effect dye fixation to a fiber material. At Column 1, lines 23-30, the reference states:

[a] dyeing process which can be carried out with little or no salt and at the same time little or no alkaline agent is advantageous particularly with regard to the dyeing process using fiber-reactive dyes because the fixation of the fiber-reactive dye in aqueous, frequently strong alkaline, dyeing liquor may be accompanied by hydrolysis reactions on the fiber-reactive dye, which is why fixation on the fiber material is not complete.

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In addition to reducing the fixation of dyes to fiber materials, the use of strongly alkaline dyeing conditions causes further problems. At Column 1, lines 30-37, the reference states:

For this reason the dyeing process has to be followed by, in some instances, extensive and time-intensive washing and rinsing processes, such as repeated rinsing with cold and hot water and in-between neutralization treatment to remove excess alkali from the dyed materials and further, for example, by a boil wash with a nonionic detergent in order that the good fastness properties of the dyeing may be ensured.

The reference solves the problems associated with fiber material alkaline dyeing noted above. At Column 2, lines 1-9, the reference describes the solution:

The present invention now provides that anionic textile dyes, in particular those having fiber-reactive groups, will surprisingly give level and strong dyeings having good service fastness properties without or only minimal use of alkaline agents and electrolyte salts provided that the textile material used is a fiber material which has been modified by pretreatment with a polymeric compound which contains at least one secondary or primary amino group and has been crosslinked on the fiber by a suitable bifunctional compound.

The von der Eltz reference, either alone or in combination with the other cited references, fails to teach or suggest the claimed invention.

As an initial matter, unlike the claimed invention which is directed to whitened crosslinked fibers, the reference relates to enhancing the substantivity of dyes in dyeing processes. The reference exemplifies dyed textiles and fabrics that are highly colored and have good fastness properties: Example 1, orange; Example 2, orange; Example 3, yellow; Example 5, strong uniform turquoise; Example 6, scarlet; Example 7, brilliant blue; Example 8, strong blue; Example 9, turquoise; Example 10, strong deep red; Example 11, strong level red; Example 12, yellow. One skilled in the art would not be motivated to combine the teaching of the von der Eltz reference directed to coloring fiber materials with any reference directed to whitening fiber materials.

Furthermore, the reference is directed to enhancing dye substantivity and fails to teach or suggest the use of a bleaching agent and teaches away from methods employing alkaline conditions. Bleaching agents lessen color (e.g., enhance whiteness). One skilled in the art would not be motivated to combine the teachings of the von der Eltz reference, which is directed to coloring textiles, with any reference seeking to "whiten" or lessen color (such as, for example, the Cook reference, which describes the use of a strong alkaline solution and strong oxidizing agent, see Abstract). The von der Eltz reference explicitly states that, because of their dyeing process, "the modified cellulose fiber materials require no further aftertreatment." See Column 5, lines 20-24. Moreover, there exists no motivation to combine the teachings of the von der Eltz reference with any reference employing strong alkaline conditions (e.g., the strongly alkaline oxidizing conditions described in the Cook reference) because the von der Eltz reference teaches away from the use of alkaline conditions for treating fiber materials because of the problems associated with diminished fixation and fastness noted above.

Also, in contrast to the claimed invention directed to whitened crosslinked fibers, the von der Eltz reference does not relate to crosslinked fibers at all, but rather to a fiber material that has been treated with a crosslinked polymer: "a polymeric compound [polyethyleneimine] which contains at least one secondary or primary amino group and has been crosslinked on the fiber by a suitable bifunctional compound [glyoxal] and thereby [the polymeric compound] rendered water-insoluble." See Column 2, lines 7-9 and Example 1-12. The water-insoluble, crosslinked polymer provides the surface on the fiber material to which the anionic dye is fixed.

Finally, with particular regard to independent method Claim 9, applicants note that the von der Eltz reference is directed to dyeing fiber materials that are textiles and in no way teaches or suggests any process that includes the steps recited in Claim 9. Specifically, Claim 9 recites separating a web of fibers treated with a whitening agent and crosslinking agent into

individualized fibers, curing those fibers to provide individualized crosslinked fibers, and then applying a bleaching agent to the individualized crosslinked fibers. The von der Eltz reference is directed to dyeing textiles and fabrics (see Examples 1-12), not treating individualized fibers.

Because the Neogi reference is unavailable as a prior art reference, and because the Cook, Sprang, von Raven, and von der Eltz references, either alone or in any combination, fail to teach, suggest, or provide any motivation to make whitened, crosslinked cellulosic fibers, the claimed invention is nonobvious and patentable over the cited references. Withdrawal of the rejection is respectfully requested.

The Provisional Obviousness-Type Double Patenting Rejection

Claims 1, 3-6, 9-14, and 17-19 have been provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-14 of copending application No. 10/815,159, in view of the Neogi reference and further in view of the von Raven reference.

Applicants note the provisional double patenting rejection and will file a terminal disclaimer on the Examiner's indication of allowable subject matter.

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CONCLUSION

In view of the above amendments and foregoing remarks, applicants believe that Claims 1-19 are in condition for allowance. If any issues remain that may be expeditiously addressed in a telephone interview, the Examiner is encouraged to telephone applicants' attorney at 206.695.1755.

Respectfully submitted,

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